Litton BIONETICS

MUTAGENIC EVALUATION OF

COMPOUND 001305788

CALCIUM OXIDE

(73-41)

5516 Nicholson Lane
Kensington, Maryland
20795

LBI PROJECT # 2468

MUTAGENIC EVALUATION OF

COMPOUND 001305788

CALCIUM OXIDE

(73-41)

SUBMITTED TO

FOOD & DRUG ADMINISTRATION
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
ROCKVILLE, MARYLAND

SUBMITTED BY

LITTON BIONETICS, INC.
5516 NICHOLSON LANE
KENSINGTON, MARYLAND

APRIL 15, 1975

Litton BIONETICS

TABLE OF CONTENTS

EVALUATION SUMMARY

Compound 001305788, Calcium Oxide, did not exhibit genetic activity in any of the microbial assays employed in this evaluation.

DATE: 04/15/75

SPONSOR: Food and Drug Administration, Contract Number 223-74-2104

SUBJECT: Evaluation of Test Compound 001305788, Calcium Oxide

I. OBJECTIVE

The objective of this study was to evaluate the test compound for genetic activity in microbial assays with and without the addition of mammalian metabolic activation preparations.

II. MATERIALS

A. Test Compound

1. Date Received: August, 1974

2. Description: Grey-white, fine powder

B. Indicator Microorganisms

The following strains of indicator microorganisms were used in the evaluation:

Yeast Strain: *Saccharomyces cerevisiae*, strain D4

Bacteria Strains: *Salmonella typhimurium*, strains: TA-1535
TA-1537
TA-1538

C. Reaction Mixture

The following reaction mixture was employed in the activation tests:

Component	Final Concentration/ml
1. TPN (sodium salt)	6 µ M
2. Isocitric acid	49 µ M
3. Tris buffer, pH 7.4	28 µ M
4. $MgCl_2$	1.7 µ M
5. Tissue homogenate fraction	72 mg

D. Tissue Homogenates and Supernatant

The tissue homogenates and 9,000 x g supernatants were prepared from tissues of the following mammalian species: Mouse-ICR random bred adult males; rat-sprague-Dawley adult males; and primate-*Macaca mulatta* adult males.

E. Positive Control Compounds

Table 1 lists chemicals for positive controls in the direct and activation assays.

TABLE 1

POSITIVE CONTROLS USED IN DIRECT AND ACTIVATION ASSAYS

Assay	Chemical[a]	Solvent	Probable Mutagenic Specificity
Non-activation	Ethylmethane sulfonate	Water or saline	BPS
	2-Nitrofluorene	Dimethylsulfoxide[c]	FS
	Quinacrine mustard	Water or saline	FS
Activation	Dimethylnitrosamine	Water or saline	BPS
	2-Acetylaminofluorene	Dimethylsulfoxide[c]	FS

a
b Concentrations given in the Results Section
c BPS = base-pair substitution; FS = frameshift
Previously shown to be non-mutagenic

III. METHODS

A. Toxicity

The solubility, toxicity and doses for all chemicals were determined prior to screening.

Each chemical was tested for survival against the specific indicator strains over a range of doses to determine the 50% survival dose. Bacteria were tested in phosphate buffer, pH 7.4, for one hour at 37°C on a shaker. Yeasts were tested in phosphate buffer, pH 7.4, for four hours at 30°C on a shaker. The 50% survival curve and the 1/4 and 1/2 50% doses calculated.

If no toxicity was obtained for a chemical with a given strain, then a maximum dose of 5% (w/v) was used against the strain.

Unless otherwise specified, the doses calculated for the tests in buffer were applied to the activation tests. The solubility of the test chemical under treatment conditions is stated in the Results Section.

B. Plate Tests

In the nonactivation procedure, approximately 10^9 cells of a log-phase culture of the bacterial indicator strains were spread over the surface of a minimal plate, and a measured amount of the test chemical was placed in the center of the test plate. In activation tests, the test chemical was added to the cells, and an aliquot of the mixture was spread on the surface of the test plate. The reaction mixture (0.1 ml) plus tissue extract was then spotted on the surface of the plate. Positive and solvent controls were included. All plates were incubated at 37°C for four days and then scored. Each compound (test, positive control and solvent control) was done in duplicate. Concentrations of the positive control compounds are listed in the Results Section.

C. Suspension Tests

1. Non activation

Log-phase bacteria and stationary-phase yeast cultures of the indicator organisms were grown in complete broth, washed and resuspended in 0.9% saline to densities of 1×10^9 cells/ml and 5×10^7 cells/ml, respectively. This constituted the working stock for tests of a group of test chemicals and their respective controls. Tests were conducted in plastic tissue culture plates. Cells plus appropriate volume(s) of the test chemical were added to the wells to give a final volume of 1.5 ml. The solvent replaced the test chemical in the negative controls. Treatment was at 30°C for four hours for yeast tests and at 37°C for one hour for bacterial tests. All flasks were shaken during treatment. Following treatment, the plates were set on ice. Aliquots of cells were removed, diluted in sterile saline (4°C) and plated on the appropriate complete media. Undiluted samples from flasks containing the bacteria were plated on minimal selective medium in reversion experiments. Samples from a 10^{-1} dilution of treated cells were plated on the selected media for enumeration of gene conversion with strain D4. Bacterial plates were scored after incubation for 48 hours at 37°C. The yeast plates were incubated at 30°C for 3-5 days before scoring.

2. Activation

Bacteria and yeast cells were grown and prepared as described in the non activation tests. Measured amounts of the test and control chemicals plus 0.25 ml of the stock-cell suspension were added to wells of the Linbro plate containing the appropriate tissue fraction and reaction mixture. All flasks (bacteria and yeast) were incubated at 37°C in an oxygen atmosphere with shaking. The treatment times as well as the dilutions, plating procedures and scoring of the plates were the same as described for non activation tests.

D. Preparation of Tissue Homogenates and 9,000 x g Cell Fractions

Male animals (sufficient to provide the necessary quantities tissues) were killed by cranial blow, decapitated and bled. Organs were immediately dissected from the animal using aseptic techniques and placed in ice-cold 0.25 M sucrose buffered with Tris at pH of 7.4. Upon collection of the desired quantity of organs, they were washed twice with fresh buffered sucrose and completely homogenized with a motor-driven homogenizing unit at 4°C. The whole organ homogenate obtained from this step was divided into two samples. One sample was frozen at -80°C and the other was centrifuged for 20 minutes at 9,000 x g in a refrigerated centrifuge. The supernatant from the centrifuged sample was retained and frozen at -80°C. These two frozen samples were used for the activation studies.

E. Data Recording and Reporting

Following the specified incubation periods all population plates were scored by an automatic colony counter and the results from each plate of a set were recorded, in ink, on data processing forms. All minimal or other types of selective media plates were hand scored and the results recorded along with the respective population data. Other relevant experimental data were recorded on experimental definition forms. For bacteria strains the number of colonies recorded from either the population or selective plates represents that number in 1 ml of test suspension plated. The numbers recorded for the yeast strain D4 represent the number in 0.5 ml of test suspension plated. Data was then processed and printed from a computer program.

SOLUBILITY PROPERTIES OF THE TEST COMPOUND

1. NAME OR DESCRIPTION OF TEST COMPOUND:

Calcium Oxide 001305788

2. TEST SOLVENT AND DESCRIPTION OF SOLUBILITY:

Suspension in 10% Saline
Soluble at treatment concentrations.

3. OTHER COMMENTS:

Fine grey powder

TOXICITY AND DOSAGE DETERMINATIONS

COMPOUND 001305 788 TEST DATE: January 7, 1975

Range of concentrations of the test compound used to determine the 50% survival level

Dose Number	% Concentration
1	10.0
2	1.0
3	0.1
4	0.01
5	0.001

Concentrations of the test chemical required for mutagenicity tests

Dose	% Concentration	
	Bacteria	Yeast
1/4 50% survival	0.000625	0.0375
1/2 50% survival	0.001250	0.0750
50% survival	0.002500	0.1500
Plate Test	0.001250	--

C. Summary of Test Results

Plate Tests

1. Name or code designation of the test compound: 001305788

2. Test date: January 31, 1975

3. Concentration of the test compound: 0.00125%

Test	Species	Tissue	TA-1535		TA-1537		TA-1538	
Non-activation			1	2	1	2	1	2
Solvent Control	--	--	6_4	1_4	4	3	6	2
Positive Control[a]	--	--	$>10^4$	$>10^4$	85	74	34	40
Test Compound	--	--	2	8	4	7	1	6
Activation								
Negative Control	--	--	11	12	1	1	12	9
Solvent Control	--	--	4	9	3	1	6	5
Reaction Mixture Control	--	--						
Positive Control[b]	Mouse	Liver	>500	>500	>100	85	>200	>200
Positive Control		Lung	9	5	8	11	15	13
Positive Control		Testes	3	4	7	8	10	9
Positive Control	Rat	Liver	>100	>100	28	24	63	63
Positive Control		Lung	9	4	6	7	12	8
Positive Control		Testes	4	3	8	6	9	12
Positive Control	Monkey	Liver	>100	>100	38	25	31	28
Positive Control		Lung	10	5	6	7	12	6
Positive Control		Testes	4	5	6	6	10	10
Test Compound	Mouse	Liver	13	6	5	9	10	12
Test Compound		Lung	9	9	9	9	12	15
Test Compound		Testes	2	1	2	4	10	15
Test Compound	Rat	Liver	11	11	7	10	11	12
Test Compound		Lung	8	9	9	8	12	14
Test Compound		Testes	3	1	4	4	12	15
Test Compound	Monkey	Liver	12	5	7	9	10	12
Test Compound		Lung	9	11	2	9	15	15
Test Compound		Testes	3	1	10	4	7	15

[a]
TA-1535	EMs	10 µl/plate
TA-1537	QM	20 µg/plate
TA-1538	NF	100 µg/plate

[b]
TA-1535	DMNA	50 µm/plate
TA-1537	AAF	100 µg/plate
TA-1538	AAF	100 µg/plate

DATA TABLE TERMS AND ABBREVIATIONS

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
COMPOUND	Client designated compound number appears in this column.
TEST CODES	NAN = Non Activation: Solvent Control NAP = Non Activation: Positive Control NA1 = Non Activation: Test Compound Dose 1 NA2, etc. = Reflects the other dose level(s) A+C = Negative Chemical Control A-C = Activation: Solvent Control ACP = Activation: Positive Control ACT = Activation: Test Compound LI = Liver Tissue Activation Fraction LU = Lung Tissue Activation Fraction KI = Kidney Tissue Activation Fraction TE = Testes Tissue Activation Fraction 1,2, etc. = Dose Levels
CONCENTRATION	All test compound dose levels are expressed as a whole number followed by an exponent (negative) identified by the appropriate units. Example: 0025-2PCT = 0.25 percent concentration
POPU	Total number of viable cells in the plating sample raised to some exponent printed directly below the abbreviation (i.e., EP + 6 = X 10^6).
MUT 1	Total number of mutants or convertants obtained from the sample plated raised to some exponent printed directly below the abbreviation (i.e., EP + 0 = X 10^0). For strain D4, MUT 1 represents the number of ADE+ convertants.
MUT 2	Only used for strain D4 and represents the number of TRY+ convertants in the plated sample.
FREQ 1	The calculated mutation or gene conversion frequency times the negative exponent written directly below. For strain D4, FREQ 1 represents the ADE+ value.
FREQ 2	Only used for strain D4 and represents the TRY+ conversion frequency.
CONTAM	Presence of contamination on any plates.

DATA TABLE TERMS AND ABBREVIATIONS (continued)

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
AAF	2-Acetylaminofluorene
DMSO	Dimethylsulfoxide
DMN	Dimethylnitrosamine
EMS	Ethyl Methanesulfonate
QM	Quinacrine Mustard
NF	Nitrofluorene
SPECIES	Animal Strains
SPRDAW	Sprague Dawley Rats
ICRFLO	Flow ICR Random Bred Mice
RHESUS	Rhesus Monkey (Macaca mulatta)
MIXEDB	Dog, Mixed Breed
NEWZEA	New Zealand White Rabbit

LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 04/15/75

SPECIES COMPOUND 001305788

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	000004 AIF EX-5	000004 TRY EX-5
NAN		1.61	12.08	5.80	2.21	3.14
NAP		243.05	2686.46	469.44	66.33	77.39
NA1		2.32	8.88	9.87	2.65	3.79
NA2		1.95	10.96	6.00	3.68	2.69

LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 04/15/75

SPECIES ICRFLO COMPOUND 001305788

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	000004 AIF EX-5	000004 TRY EX-5
ACT	A+C	0.93	3.59	4.92	6.30	12.91
ACT	A-C	1.04	3.21	5.77	6.38	13.81
ACT	PLI	128.68	6.71	24.04	9.48	29.12
ACT	PLU	1.00	2.19	7.37	6.67	16.81
ACT	PTF	1.63	2.90	7.02	4.73	17.40
ACT	LI1	2.83	2.50	9.24	6.64	24.60
ACT	LI2	1.27	2.23	9.77	5.43	18.62
ACT	LU1	1.96	2.66	10.58	5.98	17.26
ACT	LU2	0.96	2.58	10.42	6.31	16.28
ACT	TF1	2.01	3.74	19.30	5.81	18.39
ACT	TF2	3.77	3.36	9.66	7.92	25.31

LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 04/15/75

SPECIES SPRDAW COMPOUND 001305788

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	000004 ADE EX-5	000004 TRY EX-5
ACT	A+C	2.22	6.77	7.88	5.52	14.73
ACT	A-C	1.45	2.70	6.66	7.34	18.04
ACT	PLI	184.24	44.71	27.00	9.87	21.94
ACT	PLU	2.45	4.96	10.52	6.34	16.64
ACT	PTE	2.83	4.50	8.02	1.63	2.90
ACT	LI1	1.87	59.02	12.64	6.14	13.43
ACT	LI2	2.59	-33.51	14.77	6.71	13.85
ACT	LU1	1.59	0.00	13.69	5.90	15.40
ACT	LU2	1.39	4.85	14.39	7.47	25.86
ACT	TE1	1.70	7.37	3.43	3.13	21.19
ACT	TE2	2.19	3.33	8.84	3.84	20.44

LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 04/15/75

SPECIES RHESUS COMPOUND 001305788

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	6.27	11.64	2.62	8.12		3.21	49.15
ACT	A-C	3.13	0.52	2.92	6.60	4.04	5.18	45.95
ACT	PLI	52.59	9.57	9.06	24.07		6.74	79.77
ACT	PLU	5.62	5.13	2.46	10.43		1.01	68.34
ACT	PTE	6.42	8.91	2.51	6.49		3.76	42.38
ACT	LI1	1.20	1.83		11.76		2.54	47.78
ACT	LI2	2.74	4.73		10.56		5.49	51.16
ACT	LU1	3.40	1.90		21.63	3.52	1.34	37.79
ACT	LU2	2.82	0.00	2.70	13.48		4.73	66.55
ACT	TE1	3.06	2.34		15.53		7.44	69.53
ACT	TE2	4.39	0.00	2.43	9.80		4.73	65.67

V. INTERPRETATION OF RESULTS AND CONCLUSIONS

Compound 001305788, Calcium Oxide, was evaluated for genetic activity in a series of *in vitro* microbial assays with and without metabolic activation. The following results were obtained:

A. *Salmonella typhimurium*

1. Plate tests

At a concentration of 0.00125%, 001305788 was not mutagenic for TA-1535, TA-1537 or TA-1538 in direct or activation plate assays.

2. Nonactivation suspension tests

The results of these tests were negative.

3. Activation suspension tests

The LI1 and LI2 doses with rat tissues showed increases in reversion frequencies with TA-1537 on the initial test. A repeat test of these two doses were negative. The LU1 dose with TA-1538 and primate tissue also exhibited a slight elevation compared to the A-C control. A repeat of this dose was negative. There were no other responses indicating an effect. Positive control frequencies for TA-1537 and TA-1538 were lower than usual.

B. *Saccharomyces cerevisiae*

1. Nonactivation suspension tests

The results of these tests were negative

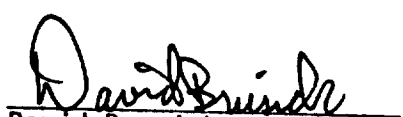
2. Activation suspension tests

The positive control frequency for the TRY appeared low, but it was accentuated because of the unusually high spontaneous background. None of the results at either locus in the activation tests appeared positive.

C. Conclusions

Compound 001305788 did not exhibit significant genetic activity in any of the assays employed in this evaluation.

Submitted by:



David Brusick, Ph.D.
Director of Genetics

APPENDIX

Tabulation of Data

REPORT FXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 500902 DETECTOR TA1535 SPECIES DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	1308	0021	1.61	0
	NAP		EMS 0.002 %	1057	2569	243.05	0
001305788	NA1		0125-5 PCT.	0949	0022	2.32	0
001305788	NA2		0625-6 PCT.	0874	0017	1.95	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104
PROJECT 02468
EXPERIMENT 502302 DETECTOR TA1537 SPECIES
DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	0240	0029	12.08	0
	NAP		0M 1.0 UG/ML	0096	2579	2686.46	0
001305788	NA1		0125-5 PCT.	0169	0015	8.88	0
001305788	NA2		0625-6 PCT.	0219	0024	10.96	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 502301 DETECTOR TA1538 SPECIES DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	NAN		DMSO	0414	0024	5.80	0
	NAP		NF 125 UG-ML	0288	1352	469.44	0
001305788	NA1		0125-5 PCT.	0304	0030	9.87	2
001305788	NA2		0625-6 PCT.	0500	0030	6.00	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 504801 DETECTOR 000004 SPECIES DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	NAN		SALINE	1084	0024	0034	2.21	3.14	0
	NAP		EMS 1.0 %	1004	0666	0777	66.33	77.39	0
001305788	NA1		0075-3 PCT.	0792	0021	0030	2.65	3.79	4
001305788	NA2		0375-4 PCT.	1005	0037	0027	3.68	2.69	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 434601 DETECTOR TA1535 SPECIES ICRFLO DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	1286	0012	0.93	0
	A-C		SALINE	1248	0013	1.04	?
	ACP	LI	DMN 50 UM/ML	1210	1557	128.68	0
	ACP	LU	DMN 50 UM/ML	1095	0011	1.00	?
	ACP	TE	DMN 50 UM/ML	1163	0019	1.63	?
001305788	ACT	LI1	0125-5 PCT.	1695	0048	2.83	?
001305788	ACT	LI2	0625-6 PCT.	1335	0017	1.27	?
001305788	ACT	LU1	0125-5 PCT.	1225	0024	1.96	0
001305788	ACT	LU2	0625-6 PCT.	0940	0009	0.96	?
001305788	ACT	TE1	0125-5 PCT.	0993	0020	2.01	?
001305788	ACT	TE2	0625-6 PCT.	0637	0024	3.77	?

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 434701 DETECTOR TA1537 SPECIES ICRFLO DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1783	0064	3.59	0
	A-C		DMSO	1590	0051	3.21	0
	ACP	LI	AAF 800 UG/ML	1983	0133	6.71	3
	ACP	LU	AAF 800 UG/ML	1460	0032	2.19	2
	ACP	TE	AAF 800 UG/ML	1619	0047	2.90	2
001305788	ACT	LI1	0125-5 PCT.	1641	0041	2.50	2
001305788	ACT	LI2	0625-6 PCT.	1707	0038	2.23	2
001305788	ACT	LU1	0125-5 PCT.	1239	0033	2.66	2
001305788	ACT	LU2	0625-6 PCT.	1122	0029	2.58	2
001305788	ACT	TE1	0125-5 PCT.	1390	0052	3.74	2
001305788	ACT	TE2	0625-6 PCT.	1549	0052	3.36	2

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 435001 DETECTOR TA1538 SPECIES ICRFLO DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPH EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1363	0067	4.92	0
	A-C		DMSO	1820	0105	5.77	0
	ACP	LI	AAF 800 UG/ML	1252	0301	24.04	3
	ACP	LU	AAF 800 UG/ML	1262	0093	7.37	?
	ACP	TE	AAF 800 UG/ML	1140	0080	7.02	?
001305788	ACT	LI1	0125-5 PCT.	1223	0113	9.24	?
001305788	ACT	LI2	0625-6 PCT.	1024	0100	9.77	0
001305788	ACT	LU1	0125-5 PCT.	0964	0102	10.58	?
001305788	ACT	LU2	0625-6 PCT.	1017	0106	10.42	?
001305788	ACT	TE1	0125-5 PCT.	0653	0126	19.30	?
001305788	ACT	TE2	0625-6 PCT.	0932	0090	9.66	?

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 500701 DETECTOR 00004 SPECIES ICRFLO DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU E+4	MUT1 E+1	MUT2 E+1	FREQ1 E-5	FREQ2 E-5	CONTAM
	A+C		DMN 90 UM/ML	0968	0061	0125	6.30	12.91	0
	A-C		SALINE	1050	0067	0145	6.38	13.81	0
	ACP	LI	DMN 90 UM/ML	0728	0069	0212	9.48	29.12	2
	ACP	LU	DMN 90 UM/ML	0809	0054	0136	6.67	16.81	2
	ACP	TE	DMN 90 UM/ML	0931	0044	0162	4.73	17.40	6
001305788	ACT	LI1	0075-3 PCT.	0557	0037	0137	6.64	24.60	6
001305788	ACT	LI2	0375-4 PCT.	0682	0037	0127	5.43	18.62	7
001305788	ACT	LU1	0075-3 PCT.	0736	0044	0127	5.98	17.26	0
001305788	ACT	LU2	0375-4 PCT.	0903	0057	0147	6.31	16.28	0
001305788	ACT	TE1	0075-3 PCT.	0620	0036	0114	5.81	18.39	6
001305788	ACT	TE2	0375-4 PCT.	0644	0051	0163	7.92	25.31	7

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 500201 DETECTOR TA1535 SPECIES SPRDAW DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0450	0010	2.22	0
	A-C		SALINE	0826	0012	1.45	2
	ACP	LI	DMN 50 UM/ML	0628	1157	184.24	0
	ACP	LU	DMN 50 UM/ML	0653	0016	2.45	0
	ACP	TE	DMN 50 UM/ML	0566	0016	2.83	2
001305788	ACT	LI1	0125-5 PCT.	0641	0012	1.87	0
001305788	ACT	LI2	0625-6 PCT.	0501	0013	2.59	2
001305788	ACT	LU1	0125-5 PCT.	0753	0012	1.59	0
001305788	ACT	LU2	0625-6 PCT.	0504	0007	1.39	2
001305788	ACT	TE1	0125-5 PCT.	0530	0009	1.70	2
001305788	ACT	TE2	0625-6 PCT.	0366	0008	2.19	2

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 502101 DETECTOR TA1537 SPECIES SPRDAW DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0251	0017	6.77	0
	A-C		DMSO	0185	0005	2.70	0
	ACP	LI	AAF 800 UG/ML	0170	0076	44.71	?
	ACP	LU	AAF 800 UG/ML	0141	0007	4.96	0
	ACP	TE	AAF 800 UG/ML	0111	0005	4.50	0
001305788	ACT	LI1	0125-5 PCT.	0122	0072	59.02	0
001305788	ACT	LI2	0625-6 PCT.	0194	0065	33.51	?
001305788	ACT	LU1	0125-5 PCT.	0016	0000	0.00	0
001305788	ACT	LU2	0625-6 PCT.	0103	0005	4.85	0
001305788	ACT	TF1	0125-5 PCT.	0095	0007	7.37	?
001305788	ACT	TF2	0625-6 PCT.	0150	0005	3.33	?

next pg.

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 505006 DETECTOR TA1537 SPECIES SPRDAW DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
001305788	ACT	LI1	0125-5 PCT.	1977	0075	3.79	0
001305788	ACT	LI2	0625-6 PCT.	2121	0053	2.50	0
001305788	ACT	LU1	0125-5 PCT.	2059	0057	2.77	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 500301 DETECTOR TA1538 SPECIES SPRDAW DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	A+C		AAE 800 UG/ML	0964	0076	7.88	0
	A-C		DMSO	1276	0085	6.66	1
	ACP	LI	AAE 800 UG/ML	1052	0284	27.00	0
	ACP	LU	AAE 800 UG/ML	1017	0107	10.52	0
	ACP	TE	AAE 800 UG/ML	1347	0108	8.02	2
001305788	ACT	LI1	0125-5 PCT.	0554	0070	12.64	0
001305788	ACT	LI2	0625-6 PCT.	0650	0096	14.77	2
001305788	ACT	LU1	0125-5 PCT.	0358	0049	13.69	0
001305788	ACT	LU2	0625-6 PCT.	0674	0097	14.39	0
001305788	ACT	TE1	0125-5 PCT.	0379	0013	3.43	2
001305788	ACT	TE2	0625-6 PCT.	1007	0089	8.84	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 500801 DETECTOR 000004 SPECIES SPRDAW DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0706	0039	0104	5.52	14.73	0
	A-C		SALINE	0654	0048	0118	7.34	18.04	0
	ACP	LI	DMN 90 UM/ML	0679	0067	0149	9.87	21.94	0
	ACP	LU	DMN 90 UM/ML	0631	0040	0105	6.34	16.64	0
	ACP	TE	DMN 90 UM/ML	0861	0014	0025	1.63	2.90	0
001305788	ACT	LI1	0075-3 PCT.	0700	0043	0094	6.14	13.43	2
001305788	ACT	LI2	0375-4 PCT.	0715	0048	0099	6.71	13.85	0
001305788	ACT	LU1	0075-3 PCT.	0831	0049	0128	5.90	15.40	0
001305788	ACT	LU2	0375-4 PCT.	0495	0037	0128	7.47	25.86	2
001305788	ACT	TE1	0075-3 PCT.	0703	0022	0149	3.13	21.19	6
001305788	ACT	TE2	0375-4 PCT.	0729	0028	0149	3.84	20.44	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 500901 DETECTOR TA1535 SPECIES RHESUS DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0734	0046	6.27	0
	A-C		SALINE	1119	0035	3.13	?
	ACP	LI	DMN 50 UM/ML	0945	0497	52.59	3
	ACP	LU	DMN 50 UM/ML	0908	0051	5.62	0
	ACP	TE	DMN 50 UM/ML	0748	0048	6.42	?
001305788	ACT	LI1	0125-5 PCT.	1164	0014	1.20	?
001305788	ACT	LI2	0625-6 PCT.	0913	0025	2.74	?
001305788	ACT	LU1	0125-5 PCT.	1029	0035	3.40	?
001305788	ACT	LU2	0625-6 PCT.	1348	0038	2.82	?
001305788	ACT	TE1	0125-5 PCT.	1372	0042	3.06	?
001305788	ACT	TE2	0625-6 PCT.	1002	0044	4.39	?

REPORT FXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 502201 DETECTOR TA1537 SPECIES RHESUS DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0146	0017	11.64	0
	A-C		DMSO	0192	0001	0.52	0
	ACP	LI	AAF 800 UG/ML	0188	0018	9.57	0
	ACP	LU	AAF 800 UG/ML	0156	0008	5.13	2
	ACP	TE	AAF 800 UG/ML	0101	0009	8.91	0
001305788	ACT	LI1	0125-5 PCT.	0327	0006	1.83	0
001305788	ACT	LI2	0625-6 PCT.	0148	0007	4.73	0
001305788	ACT	LU1	0125-5 PCT.	0263	0005	1.90	0
001305788	ACT	LU2	0625-6 PCT.	0097	0000	0.00	2
001305788	ACT	TE1	0125-5 PCT.	0256	0006	2.34	0
001305788	ACT	TE2	0625-6 PCT.	0118	0000	0.00	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 505002 DETECTOR TA1537 SPECIES RHESUS DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1755	0046	2.62	0
	A-C		DMSO	2053	0060	2.92	0
	ACP	LI	AAF 800 UG/ML	2378	186	9.06	0
	ACP	LU	AAF 800 UG/ML	1786	0044	2.46	0
	ACP	TE	AAF 800 UG/ML	2115	0053	2.51	0
001305788	ACT	LU2	0625-6 PCT.	2296	0062	2.70	0
001305788	ACT	TE2	0625-6 PCT.	2547	0062	2.43	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104
EXPERIMENT 501001 DETECTOR TA1538 SPECIES RHESUS PROJECT 02468 DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0936	0076	8.12	0
	A-C		DMSO	1076	0071	6.60	2
	ACP	LI	AAF 800 UG/ML	0810	0195	24.07	3
	ACP	LU	AAF 800 UG/ML	1064	0111	10.43	0
	ACP	TE	AAF 800 UG/ML	1263	0082	6.49	2
001305788	ACT	LI1	0125-5 PCT.	0646	0076	11.76	0
001305788	ACT	LI2	0625-6 PCT.	0824	0087	10.56	0
001305788	ACT	LU1	0125-5 PCT.	0527	0114	21.63	0
001305788	ACT	LU2	0625-6 PCT.	0690	0093	13.48	0
001305788	ACT	TE1	0125-5 PCT.	0631	0098	15.53	0
001305788	ACT	TE2	0625-6 PCT.	0694	0068	9.80	2

REPORT EX333 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104
EXPERIMENT 505003 DETECTOR TA1538 SPECIES RHESUS PROJECT 02468
DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUTI EP+0	FREQ1 EP-8	CONTAM
	A-C		DMSO	0570	0023	4.04	0
001305788	ACT	LUI	0125-5 PCT.	0597	0021	3.52	0

REPORT FXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 502901 DETECTOR 000004 SPECIES RHESUS DATE - 04/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0529	0017	0260	3.21	49.15	4
	A-C		SALINE	0618	0032	0284	5.18	45.95	0
	ACP	LI	DMN 90 UM/ML	0341	0023	0272	6.74	79.77	0
	ACP	LU	DMN 90 UM/ML	0398	0004	0272	1.01	68.34	2
	ACP	TE	DMN 90 UM/ML	0505	0019	0214	3.76	42.38	0
001305788	ACT	LI1	0075-3 PCT.	0473	0012	0226	2.54	47.78	4
001305788	ACT	LI2	0375-4 PCT.	0346	0019	0177	5.49	51.16	0
001305788	ACT	LU1	0075-3 PCT.	0598	0008	0226	1.34	37.79	0
001305788	ACT	LU2	0375-4 PCT.	0296	0014	0197	4.73	66.55	4
001305788	ACT	TE1	0075-3 PCT.	0430	0032	0299	7.44	69.53	4
001305788	ACT	TE2	0375-4 PCT.	0402	0019	0264	4.73	65.67	0